

DEPARTMENT OF EDUCATION-FSA FMS INTEGRATION PARTNER FORM FUNCTIONAL DESIGN



NEGATIVE NUMBER ENHANCEMENT TO 130 – FORM 2000 ENHANCEMENTS

Author: Stewart Sadler
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		Subject: Form 2000 – Negative Number Enhancement - Functional Design
		TO 130 – Form 2000 Enhancements
Prepared by: Stewart Sadler	Date: March 13, 2003	Version: 1.0

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Document Change Control

Date	Author	Version	Change Reference
03-13-03	Stewart Sadler	1.0	Created Document

Approval

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Team Lead Sign Off:	Joanna Zieba	312-693-3414	Sign Off Date: 04/11/2003
Project Lead Sign Off:	Jen Alden	202-962-0682	Sign Off Date: 04/15/2003
FSA Representative Sign Off:	Matt Fontana	202-377-3005	Sign Off Date:

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Specification

Program Name:	Form 2000 Negative Number Enhancement
Functional Design Document ID & Title:	FORM2000_NEG_NUM_FORM_FD.doc
Application:	FMS Form 2000 Monthly FMS Form 2000 Quarterly (Monthly/Quarterly Form) FMS Form 2000 Annual
Priority:	High
Estimated Production Date:	July 2003
Other Affected Applications:	None
Comments:	

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General Requirements

Business Objective:

As part of TO 130, the Integration Partner has been tasked with enhancing the Form 2000 Monthly, Quarterly, Annual, and Itemized Line Item Financial Forms to accept negative numbers. In addition, the Monthly, Quarterly, and Annual FTP data file load programs will be modified to accept negative numbers. Currently, Form 2000 and the FTP data file loads only allow the users to submit negative numbers in field MR-31 on the Quarterly Form. When the user tries to enter a negative number into any other field on the forms they receive the error message “FRM-40207 – Must be in range. 0.00,” and are not be able to leave the field until they make the number positive. If the user enters a negative number into the FTP data file load on any other field, besides MR-31, the entire data file is rejected.

In order to account for negative numbers in Form 2000 and the data file load, there is currently a manual work around. The Guarantee Agency (GA) users use comment fields in the forms and data file loads to specify if the number they are entering should be a negative for any other fields, besides MR-31. The Financial Partners (FP) have a manual process where they record numbers in an Excel spreadsheet with the negative sign and perform any necessary calculations they may need. However, these changes are never captured in the FMS system.

This enhancement will allow the GA users to enter positive or negative values into the Form 2000 Monthly, Quarterly, and Annual Forms and FTP data file load programs and eliminate the manual work process in place today. This will minimize the chance for human error and also allow the system to be updated with the correct information.

Component Description:

To fulfill the Business Objective, the Form 2000 FSA GA Monthly, Quarterly, Annual, and Itemized Line Item Financial Forms and FTP data file load programs non payment fields will need to be enhanced in order to allow negative numbers. The following Form 2000 and FTP file data load non payment fields will be modified to allow negative numbers:

- **Monthly** - The fields on the FSA GA Monthly Financial Forms and data file load programs that will be enhanced to allow negative numbers are fields MR-17 through MR-23 for Principle Amount, Interest Amount, and Other Amount columns. (Requirements Matrix 1.1 and 1.4)
- **Quarterly** - The fields on the FSA GA Quarterly Financial Forms and data file load program that will be enhanced to allow negative numbers are fields MR-23 through MR-42 for Principle Amount, Interest Amount, and Other Amount columns. (Requirements Matrix 1.2 and 1.4)
- **Annual** - The fields on the FSA GA Annual Financial Forms and data file load programs that will be enhanced to allow negative numbers are AR-15 through AR-57 for Amount/CY Actual, CY + 1 Projection, CY + 2 Projection, CY + 3 Projection, CY + 4 Projection, and CY + 5 Projection columns. (Requirements Matrix 1.3 and 1.4)

Itemized Line Items - The FSA GA Annual Financial Report also has another form associated with it that will need to be enhanced. When the user clicks on AR-20, AR-25, AR-36, and AR-39, another screen, Schedule of Itemized Line Items, appears. This form will also have the Amount/CY Actual, CY + 1 Projection, CY + 2 Projection, CY + 3 Projection, CY + 4 Projection, and CY + 5 Projection fields enhanced to allow negative numbers. (Requirements Matrix 1.3 and 1.4)

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Range Low Value: There is a built in property in Oracle Forms called Range Low Value that determines the minimum value allowed in the text item. This property currently contains the value of 0.00 for the fields that do not accept negative numbers. This property will have the 0.00 taken out of the value set in order to remove the negative constraint on the required fields. The Range Low Value property will not have anything typed into the field.

FTP Data File Load Program: Once the Range Low Value modification has been made, the Monthly, Quarterly, and Annual FTP data file load programs will be modified to allow negative numbers in the non payment fields listed above. These load packages currently contain edits that do not allow the file to be loaded into Form 2000 if there are negative numbers in any field besides MR-31. These edits are coded into the Monthly load package, FFELGA_Monthly_FILE_LOAD_PKG, Quarterly load package, FFELGA_Quart_FILE_LOAD_PKG, and the Annual load package, FFELGA_Annual_FILE_LOAD_PKG. Currently, if there are any negative amounts in the submitted data file, besides MR-31, the entire file will be rejected. The code in each load package that performs these edit checks will be commented out for the non payment fields listed above so that the FTP data files can include negative values.

Component Risks:

N/A

Development Complexity:

Low

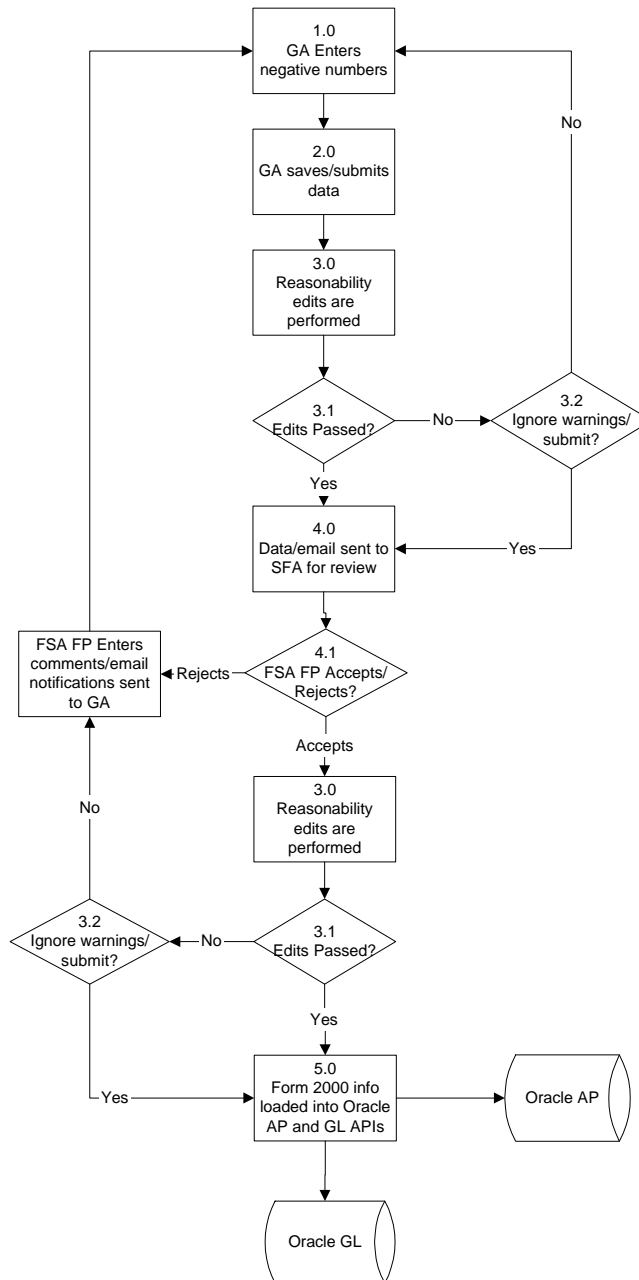
Assumptions:

- The user will enter negative numbers into the form and FTP data files with a negative sign in front of the number. i.e. -1,000
- The GL accounting will remain unchanged for the monthly, quarterly, and annual transactions and as a result, negative debits and credits will be applied to the books.
- Any field other than the ones described above will continue to not accept negative numbers.
- This enhancement will only affect fields that are used for non payment activity and will therefore not affect Accounts Payable related data.
- The FSA GA Maintenance screen will not be modified as a result of this enhancement.
- The FFELGA_MONTHLY_REPORTS, Oracle GL and AP open interface and base tables allow negative numbers.
- This enhancement will not affect the GL data extraction to FP Datamart, nor the reports generated in FP Datamart.
- The field width will not change as a result of the enhancement. If a value is larger than the displayed field width because of the negative sign, the user will have to scroll the field to view the entire value.

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Design

Process Flow Diagram for FSA GA Monthly, Quarterly, and Annual Forms:

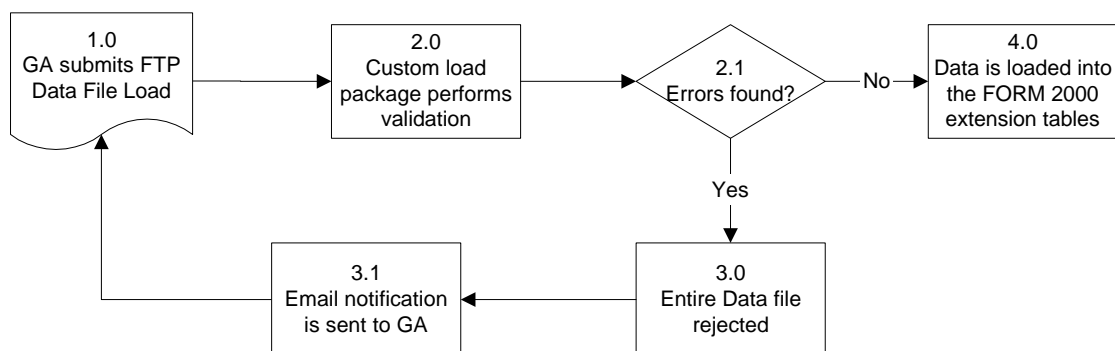


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Detailed Description of New/Changes to FSA GA Monthly, Quarterly, and Annual Forms:

- 1.0 GA user enters financial data into the Monthly, Quarterly, or Annual Form 2000. Currently all the fields in these forms, with the exception of MR-31, do not allow negative numbers. When the user tries to enter a negative number into any other field on the forms they receive the error message, “FRM-40207 – Must be in range. 0.00”, and are not able to leave the field until they make the number positive. The Range Low Value property in Oracle Forms will have the 0.00 cleared and the field left blank for the fields requiring negative numbers in order for the users to be able to enter negative numbers. The user will enter negative numbers into the form with a negative sign in front of the number. (E.g. -1,000.) No other process changes will occur.
- 2.0 Submit/Save Function – Once the GA user has entered in the financial data they can either choose to save the data or submit it to the FSA FP for review. No Changes will be made to this functionality.
- 3.0 Reasonability Edits – Once the user selects the save or submit button, there are currently 3 reasonability edits that are performed. The dollar amounts are validated against the following rules when the Financial Report is saved and/or when it is submitted. Warning messages occur for those fields violating the reasonability checks. The warning messages may be ignored and processing continue, however the user has the opportunity to review the identified fields for entry errors before saving/submitting.
 1. Before submitting, a check is performed to ensure there is at least one non-zero dollar amount.
 2. For fields MR-1 through MR-23, the previous year value must be + or -5% of corresponding amount for the as a part of the same month for the previous year. (This edit is currently being removed from Form 2000 as part of the Form 2000 Edit enhancement.)
 3. The field MR-1-A Other must be greater than or equal to the MR-1-A Principal for the same form.
 - 3.1 If the edits are not passed and the user chooses to review the fields that have violated the edits they can accept the warnings and not submit the form.
 - 3.2 If the edits are not passed, the user can choose to ignore the warnings and submit or save the form.
- 4.0 Monthly data sent to FSA – The data is sent to the FSA FP for review. No changes will be made to this functionality.
 - 4.1 FSA FP Accepts/Rejects – If the FP accepts the form, the reasonability edits listed above are performed again. If the FP rejects the form, comments are entered and an email is sent back to the GA to review the form and make changes. No changes will be made to this functionality.
- 5.0 Form 2000 Load – If the FP accepts the form and no edit checks are violated, the Form 2000 transaction information is loaded into Oracle AP and GL. No changes will be made to this functionality.

Design - Process Flow Diagram for Monthly, Quarterly, and Annual FTP Data File Loads:



Detailed Description of New/Changes to Monthly, Quarterly, and Annual FTP Data File Loads:

Note - The Form 2000 Negative Number enhancement must be implemented before the FTP data file package code change takes place. This change is dependent on the negative number enhancement being complete.

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- 1.0 GA Submits Data File – The GA user enters financial data into the Monthly, Quarterly, or Annual FTP data file load and submits it to the FSA FP. The user will enter negative numbers into the FTP data files with a negative sign in front of the number. (e.g. -1,000) The data file is loaded into a custom temporary Oracle table.
- 2.0 Custom Load Package - Once the data file is loaded into the custom Oracle temporary table, the custom load package performs validation on the data. One of the validation rules within this package checks to ensure the fields, besides MR-31, do not contain negative values. If any of the data fails validation, the entire data file is rejected.

The code that is used to perform the error check to ensure a negative sign has not been entered in the FTP data file load will be modified to not perform this check on the non payment fields referenced throughout this design for the monthly, quarterly, and annual FTP data file loads. The code that performs this check will be commented out of the monthly, quarterly, and annual load packages. The packages that will be changed are the FFELGA_Monthly_FILE_LOAD_PKG, FFELGA_Quart_FILE_LOAD_PKG, and FFELGA_Annual_FILE_LOAD_PKG.

There are two edits in the FFELGA_ANNUAL_FILE_LOAD_PKG package that have the error check to validate negative numbers. They validate the data in the Annual data file Temporary Table (FFELGA_Annual_TEMP) and in the Annual Items data file Temporary Table (FFELGA_ANNUAL_ITEMS_TEMP).

The FFELGA_Monthly_FILE_LOAD_PKG, and FFELGA_Quart_FILE_LOAD_PKG only have one error check to validate the data in the monthly Temporary Table (FFELGA_MON_TEMP) and the Quarterly data file Temporary Table (FFELGA_QUART_TEMP).

- 3.0 If any data in the file fails validation, the entire data file fails and the data is not loaded into Form 2000.
 - 3.1 An email is sent to the GA user notifying the user of the errors.
- 4.0 If the data passes validation, it is imported into Form 2000, and the Financial Form is automatically submitted to the FSA Financial Partners (the Status is set to “Submitted”). An email is sent to the GA user and the FSA Financial Partners notifying them of a successful submission.

Database Objects:

Database Object Name	Object Type	Oracle Application	Comments
FFELGA_Monthly_FILE_LOAD_PKG	PL/SQL Package	Form 2000	The existing package will be modified to allow negative number functionality.
FFELGA_Quart_FILE_LOAD_PKG	PL/SQL Package	Form 2000	The existing package will be modified to allow negative number functionality.
FFELGA_Annual_FILE_LOAD_PKG	PL/SQL Package	Form 2000	The existing package will be modified to allow negative number functionality.

Data/Control Objects:

Block Name/Region Name	Field Name	Field Name	Property Name	Property Value	Table Name/Column Name	Functional Notes / Calculations / Translations	Comments
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SFAMON – Monthly	MR17_P MR17_I MR17_O MR18_P MR18_I MR18_O MR19_P MR19_I MR19_O MR20_P MR20_I MR20_O MR21_P MR21_I MR21_O MR22_P MR22_I MR22_O MR23_P MR23_I MR23_O		Range Low Value	-will be changed from 0.00 to Blank	FFELGA_MO NTHLY_REPO RTS_V		
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SFAMON2- Quarterly	MR24_P MR24_I MR24_O MR25_P MR25_I MR25_O MR26_I MR26_O MR27_P MR27_I MR27_O MR28_P MR28_I MR28_O MR29_P MR29_I MR29_O MR30_P MR30_I MR30_O MR31_P MR31_I MR31_O MR32_P MR32_I MR32_O MR33_I MR33_P MR34_I MR34_P MR35_I MR35_P MR36_I MR36_OP MR37_I MR37_P MR38_I MR38_P MR39_I MR39_P MR40_I MR40_P MR41_P MR41_I MR41_O MR42_P MR42_I MR42_O		Range Low Value	-will be changed from 0.00 to Blank	FFELGA_MO NQUART_REP ORTS_V		
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SFAANN – Annual	,AR15_CY ,AR15_CY1 ,AR15_CY2 ,AR15_CY3 ,AR15_CY4 ,AR15_CY5 ,AR16_CY ,AR16_CY1 ,AR16_CY2 ,AR16_CY3 ,AR16_CY4 ,AR16_CY5 ,AR17_CY ,AR17_CY1 ,AR17_CY2 ,AR17_CY3 ,AR17_CY4 ,AR17_CY5 ,AR18_CY ,AR18_CY1 ,AR18_CY2 ,AR18_CY3 ,AR18_CY4 ,AR18_CY5 ,AR19_CY ,AR19_CY1 ,AR19_CY2 ,AR19_CY3 ,AR19_CY4 ,AR19_CY5 ,AR20_CY ,AR20_CY1 ,AR20_CY2 ,AR20_CY3 ,AR20_CY4 ,AR20_CY5 ,AR21_CY ,AR21_CY1 ,AR21_CY2 ,AR21_CY3 ,AR21_CY4 ,AR21_CY5 ,AR22_CY ,AR22_CY1 ,AR22_CY2 ,AR22_CY3 ,AR22_CY4 ,AR22_CY5 ,AR23_CY ,AR23_CY1 ,AR23_CY2 ,AR23_CY3 ,AR23_CY4 ,AR23_CY5 ,AR24_CY ,AR24_CY1 ,AR24_CY2 ,AR24_CY3 ,AR24_CY4 ,AR24_CY5 ,AR25_CY ,AR25_CY1 ,AR25_CY2 ,AR25_CY3	,AR32_CY2 ,AR32_CY3 ,AR32_CY4 ,AR32_CY5 ,AR33_CY ,AR33_CY1 ,AR33_CY2 ,AR33_CY3 ,AR33_CY4 ,AR33_CY5 ,AR34_CY ,AR34_CY1 ,AR34_CY2 ,AR34_CY3 ,AR34_CY4 ,AR34_CY5 ,AR35_CY ,AR35_CY1 ,AR35_CY2 ,AR35_CY3 ,AR35_CY4 ,AR35_CY5 ,AR36_CY ,AR36_CY1 ,AR36_CY2 ,AR36_CY3 ,AR36_CY4 ,AR36_CY5 ,AR37_CY ,AR37_CY1 ,AR37_CY2 ,AR37_CY3 ,AR37_CY4 ,AR37_CY5 ,AR38_CY ,AR38_CY1 ,AR38_CY2 ,AR38_CY3 ,AR38_CY4 ,AR38_CY5 ,AR39_CY ,AR39_CY1 ,AR39_CY2 ,AR39_CY3 ,AR39_CY4 ,AR39_CY5 ,AR40_CY ,AR40_CY1 ,AR40_CY2 ,AR40_CY3 ,AR40_CY4 ,AR40_CY5 ,AR41_CY ,AR41_CY1 ,AR41_CY2 ,AR41_CY3 ,AR41_CY4 ,AR41_CY5 ,AR42_CY ,AR42_CY1 ,AR42_CY2 ,AR42_CY3 ,AR42_CY4 ,AR42_CY5	Range Low Value	-will be changed from 0.00 to Blank	FFELGA_ANN UAL_REPORT S_V		
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	,AR25_CY4 ,AR25_CY5 ,AR26_CY ,AR26_CY1 ,AR26_CY2 ,AR26_CY3 ,AR26_CY4 ,AR26_CY5 ,AR27_CY ,AR27_CY1 ,AR27_CY2 ,AR27_CY3 ,AR27_CY4 ,AR27_CY5 ,AR28_CY ,AR28_CY1 ,AR28_CY2 ,AR28_CY3 ,AR28_CY4 ,AR28_CY5 ,AR29_CY ,AR29_CY1 ,AR29_CY2 ,AR29_CY3 ,AR29_CY4 ,AR29_CY5 ,AR30_CY ,AR30_CY1 ,AR30_CY2 ,AR30_CY3 ,AR30_CY4 ,AR30_CY5 ,AR31_CY ,AR31_CY1 ,AR31_CY2 ,AR31_CY3 ,AR31_CY4 ,AR31_CY5 ,AR32_CY ,AR32_CY1	,AR43_CY ,AR43_CY1 ,AR43_CY2 ,AR43_CY3 ,AR43_CY4 ,AR43_CY5 ,AR44_CY ,AR44_CY1 ,AR44_CY2 ,AR44_CY3 ,AR44_CY4 ,AR44_CY5 ,AR45_CY ,AR45_CY1 ,AR45_CY2 ,AR45_CY3 ,AR45_CY4 ,AR45_CY5 ,AR46_CY ,AR46_CY1 ,AR46_CY2 ,AR46_CY3, AR46_CY4 ,AR46_CY5 ,AR47_CY ,AR47_CY1 ,AR47_CY2 ,AR47_CY3 ,AR47_CY4 ,AR47_CY5 ,AR48_CY ,AR49_CY ,AR50_CY ,AR51_CY ,AR52_CY ,AR53_CY ,AR54_CY ,AR55_CY ,AR56_CY ,AR57_CY					
LINES - Itemized Line Item	AMT_CY CY1_PR CY2_PR CY3_PR CY4_PR CY5_PRO		Range Low Value	-will be changed from 0 to Blank	FFELGA_ANN UAL_ITEMS		

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Dependencies

Dependencies on Other RICE Components:

The Form 2000 Negative Number enhancement changes (Requirements Matrix 1.1, 1.2 and 1.3) must be implemented before the FTP Data File Load program changes (Requirements Matrix 1.4) take place.

Dependencies on Other Business Components:

N/A

Design Constraints:

N/A

Performance Considerations:

N/A

Implementation Considerations:

Because there has always been a negative number constraint on the Monthly, Quarterly, and Annual forms and FTP file loads, the users will need to be notified of the process change and the requirements for how a negative number should be entered.

N/A

Other Dependencies/Special Concerns:

N/A

Error Handling

Potential Errors	Possible Reasons	Solution Strategy
Form 2000 cannot be saved or submitted when a negative number is entered	-User is entering the negative value in the wrong format (i.e. <123.45>)	-Enter negative value in the proper format of -123.45 and save or submit the form

Testing Requirements

Requirement #	Test Condition	Expected Results
1.1	Open the monthly form and enter negative numbers into fields MR17-MR23 and click the save or submit button	The form is submitted with a status of in process
1.2	Open the quarterly form and enter negative numbers into fields MR24-MR42 and click the save or submit button	The form is submitted with a status of in process
1.3	Open the annual form and enter negative numbers into fields AR15-AR57 and click the save or submit button	The form is submitted with a status of in process
1.3	Open the annual form and click on the AR 20, AR 25, AR 36, and AR 39 button and enter negative numbers into line item fields and click the return button	The form accepts the negative numbers and returns to the annual form
1.4	Create a monthly FTP file and enter negative numbers into fields MR17-MR23	The file passes the edits and is loaded into Form 2000
1.4	Create a quarterly FTP file and enter negative numbers into fields MR24-MR42	The file passes the edits and is loaded into Form 2000
1.4	Create a annual FTP file and enter negative numbers into fields AR15-AR57	The file passes the edits and is loaded into Form 2000

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1.1	Open the monthly form and enter negative numbers into fields MR1-MR16 and click the save or submit button	The user receives the error message “FRM-40207 – Must be in range. 0.00,” and are not able to leave the field until they make the number positive.
1.3	Open the annual form and enter negative numbers into fields AR1-AR14 and click the save or submit button	The user receives the error message “FRM-40207 – Must be in range. 0.00,” and are not able to leave the field until they make the number positive.

Issues and Additional Considerations

The following Issues were defined during Functional Design:

Issue	Raised By / Date Needed	Resolution/Answer	Resolved By / Date Completed